

LITERATURE CITED

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GROWTH HABITS OF ARABIS PERSTELLATA

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Since describing *Arabis perstellata* in 1940 (RHODORA 42: 47-48), I have had plants of this species almost continuously under observation, noting growth habit year by year. In the eighth edition of Gray's Manual (Fernald, 1950), this and what was known as *Arabis dentata* T. & G. are included in one species, *A. perstellata* E. L. Br., made up of the "typical" variety and var. *Shortii* Fern. (*A. dentata* (Torr.) T. & G.). In the New Britton and Brown Illustrated Flora (Gleason, 1952), these are maintained as distinct but related species, *A. perstellata* Braun and *A. Shortii* (Fern.) Gl. Neither manual adequately states the habit of growth of *A. perstellata*, the former stating "perennial, with strong branching base and definitely perennial leafy basal offsets"; the latter, with no statement, figures a single erect stem arising terminally from an ill-defined basal rosette.

Flowering plants may have from one to thirty flowering stems, all axillary; the central axis of the plants is a short leafy stem, very short at first, later elongating 1-3 cm. a year, with leaves more closely placed toward apex (Figs. 1, 2). This central or vegetative axis persists throughout the life of the plant. The first spring, the plant (from seed germinating sometime during the previous summer or fall) is a loose rosette of petioled leaves (Fig. 3). The central axis elongates, and by the second spring is 1-2 cm. long, the shriveled petioles of leaves of the previous season persisting near its base (Fig. 4). If flowers are produced the second spring, the flowering stem is definitely lateral, from the axil of a leaf of the previous season (Fig. 2). Year by year, henceforth, the central or vegetative axis elongates, and each



FIGS. 1-9. *Arabis perstellata*. FIG. 1. Plant at least 5 years old, showing central vegetative axis and three flowering branches of 1954 growth; below, at successively older nodes, stubs of flowering branches of previous years, and, at 1951 node, part of the stem of a vegetative offset. FIG. 2. A two-year old plant, with central vegetative axis and one flowering branch, and at *a*, shriveled petioles of leaves of the previous year. FIG. 3. Rosette in late May of first spring, wrinkled cotyledons at *a*. FIG. 4. Rosette in late May of second spring, with wrinkled petioles (*a*) of previous year. FIG. 5. Flower, enlarged. FIG. 6. Silique and wingless seed, enlarged. FIG. 7. Stellate and simple hairs of upper leaf surface. FIG. 8. Stellate hairs of lower leaf surface. FIG. 9. Greatly enlarged scale-like hair.

year flowering stems arise from nodes of the year-old part of the stem. The old stem becomes hard and woody, and the bases of fruiting branches persist for several years, a group for each year of growth (Fig. 1). Occasionally, a vegetative axillary branch is formed (as at the 1951 node in Fig. 1), and henceforth elongates slowly as does the main axis. Very often, the old vegetative axis is decumbent and covered by an accumulation of humus, only the year-old leafy stem arising vertically above the ground surface.

Arabis perstellata, then, is definitely perennial by a slowly elongating central axis; axillary offsets occasionally arise; all flowering stems are lateral, and arise near the apparent base of the plant, i. e., from the year-old part of the stem.

Examination of herbarium specimens of the "chiefly biennial" *A. Shortii* suggests that the growth habit may be similar, and that at least some plants may live for more than two years.

A. perstellata differs from *A. Shortii* in being densely stellate-pubescent throughout, so densely that stems and foliage are whitish to grayish-green. Forked hairs of the calyx and pedicels (Fig. 5) are long and ascending; those of the silique (Fig. 6) very small and inconspicuous (similar to those that may be present on *A. Shortii*). Long stiff ascending hairs (like those of the upper leaf surface of *A. Shortii*) are scattered among the more numerous stellate hairs of the upper leaf surface (Fig. 7). The lower leaf surface (Fig. 8) and basal parts of stems are whitened with closely placed and interlocking stellate hairs. Occasional much larger scale-like hairs, with papillate arms, occur on the lower leaf surface (Fig. 9). Pedicels of *A. perstellata* at anthesis are nearly twice as long as the flower (those of *A. Shortii* about one-half as long) and later elongate to 10 mm.; petals are pink (instead of yellowish-white), 3–4 mm. long and half again as long as the sepals (instead of 2–3 mm. long and barely exceeding the sepals). Cauline leaves of *A. perstellata* are more deeply and irregularly toothed than those of *A. Shortii*, auricled or clasping on the middle and upper parts of the branches, tapering toward the base or slender-petioled and lyrate-pinnatifid on the lower part of branches; at least some of the leaves of the vegetative axis lyrate-pinnatifid, all slender-petioled.

The two taxa are evidently closely related, but apparently distinct species. *A. perstellata* is very abundant at and near the

type locality—wooded calcareous bluffs of Elkhorn Creek, Franklin County, Kentucky, in the Bluegrass region of that state.—UNIVERSITY OF CINCINNATI.

A CTYOTAXONOMIC STUDY OF THE GENUS *HYMENOPAPPUS* (COMPOSITAE)

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(Continued from page 269)

9a. *Hymenopappus scabiosaeus* L'Hér. var. *scabiosaeus*

Hymenopappus scabiosaeus L'Hér. *Hymenop.* 1: 1788.

Rothia caroliniensis Lam. *Jour. Hist. Nat.* 1: 17. 1792. *Hymenopappus caroliniensis* Porter, *Mem. Torr. Bot. Club* 5: 338. 1894. Photograph of type examined (GH): without date, sheet from Lamarck's herbarium.

Hymenopappus laxiflorus L'Hér. in DC. *Prodr.* 5: 658. 1836, as synonym.

Plants biennial, 40–150 cm. tall, the stems single from each tap-root, erect, much-branched, angled and grooved, glabrous to sparsely pubescent; leaves alternate, mostly glabrous above and variously pubescent beneath, in the first year simple or mostly once-pinnate, up to 25 cm. long, 4–5 cm. wide, forming a basal rosette; later formed stem-leaves mostly glabrous, 15–50 in number, not much reduced, once-pinnate to bipinnately dissected, with broad to narrowly linear segments; heads numerous, discoid, 25–80-flowered, on densely strigose or glabrate ultimate peduncles mostly 1 to 5 cm. long, these having at their bases conspicuous, membranous, petaloid bracts 5–14 mm. long, 3–10 mm. wide (rarely much reduced); involucre bracts white, petaloid, showy, equal or subequal, 7–15 mm. long, 4–8 mm. wide, membranous for half or more of their length; corollas white or creamy white, sweet scented, 3–5.5 mm. long, the tube stipitate-glandular, 2–3 mm. long, the throat funnelform, 1.2–3 mm. long, with lobes reflexed, about equaling the lobes; achenes obpyramidal, 4-sided, 3.5–5 mm. long, short-pubescent, principally on the corners, with hairs 0.1–0.4 mm. long, the faces with 2–3 nerves; pappus of 14–18 small obovate scales 0.1–0.6 mm. long; anthers completely exserted, 2–2.5 mm. long; chromosome number not known.

DISTRIBUTION.—Scattered, apparently rare, principally in the Mississippi Valley region and southeastern United States: known by relatively few collections from Indiana, Illinois, Missouri, Oklahoma, Arkansas, and eastern Mississippi, Georgia, adjacent South Carolina, and Florida. In the southern part of its range it is commonly found in sandy pine woods; in the northern part it occupies rocky, sandy barrens and open disturbed areas (Fig. 45). April–June.